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Applicant : Peter B. Madoff et al. Art Unit : 3621
Serial No. : 09/272,542 Examiner : Hewitt, Calvin
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Title : AUCTION MARKET WITH PRICE IMPROVEMENT MECHANISM

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APPEAL BRIEF ON BEHALF OF PETER B. MADOFF ET AL.

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(1) Real Party In Interest

The real party in interest in the above application is Primex Holdings, L.L.C., a New York limited liability company.

(2) Related Appeals and Interferences

The appellant is not aware of any appeals or interferences related to the above-identified patent application.

(3) Status of Claims

This is an appeal from the decision of the Primary Examiner in an Office Action dated June 26, 2003, finally rejecting claims 1-40, 55-58 and 64-78, all of the claims of the above application.

Claims 3, 5 and 24 were rejected as indefinite. Claims 33, 34, 38, 39 and 64 were rejected under 35 U.S.C. § 102 (e) as anticipated by Harrington et al, U.S. Patent 6,161,099. Claims 1, 2, 4, 14-25, 27-32, 35, 36, 40, 55-58, 65-72, and 74-78 were rejected under 35 U.S.C. § 103 (a) as being obvious over Harrington et al, U.S. Patent 6,161,099. Claims 3, 5, 12, 13, 26 and 73 were rejected under 35 U.S.C. §103 (a) as being obvious over Harrington et al, U.S. Patent 6,161,099 in view of Silverman et al. U.S. Patent 5,136,501. Appellant filed a Notice of Appeal on **July 15 2001** with the corresponding fee. Enclosed herewith is a new Notice of Appeal with an authorization to charge the fee provided that a new Notice of Appeal fee is due.

(4) Status of Amendments

Appellant has filed a response to the outstanding office action addressing the rejections under 35 U.S.C. 112, second paragraph. Entry of the response is pending before the examiner. Appellant has responded with this appeal brief since Appellant's claims have been twice rejected.

(5) Summary of Invention

Background

The claimed invention relates to an automated auction system for trading products such as equity securities.

There are known auction processes. One type of auction process is a live auction for financial instruments such as futures contracts and for equities in an exchange. Examples of live auction include but are not limited to the New York Stock Exchange® (NYSE) or the American Stock Exchange® (AMEX). Other types of auctions are so called "call" or "periodic" auctions such as the Arizona Stock Exchange and the OptiMark™ trading system. In these types of "periodic" auctions, orders are matched only at specified times during the day.

Appellant's Invention

Appellant's invention is directed to auctioning products over a distributed networked computer system. The invention includes entering orders for a product. The orders specify prices that can be a fixed price, a relative price or a market price, for instance. The orders also specify a quantity and an exposure time for which the order can be exposed to a crowd and attract responses, contra side orders and pre-defined relative indications. As part of the auction, a first one of the orders is matched with the first best response, contra side order, or pre-defined relative indication during the interval set by the exposure time in the order, which meets the conditions of the order. Matching of the order with the first one of the responses, contra side orders, or pre-defined relative indications meeting conditions of the order terminates the auction.

The pre-defined relative indications specify a price relative to a floating current market price, and reside in the system and remain dormant and unseen by other participants to the extent it is not matched by an order. The pre-defined relative indication is a participant's willingness to accept an order at a price equal to the current market price at the time the order is entered with or without additional price improvement. The pre-defined relative indication allows trading interest to remain anonymous as to price, size, identity and existence. A pre-defined relative indication is priced relative to a standard reference quote.

The auction process is active when an order is presented to the system. Thus, unlike the auction markets with physical trading floors and crowds, the auction process and system of the present invention provides complete automation for both access and execution for transactions. Each time an order arrives in the system, a new auction commences with respect to that order. The order can be immediately matched with a contra side order or response if available, instead of having to wait until a specified time of day or interval to elapse. Entries to match against an order in the auction system can include fixed price, relative price and predefined relative indications. Responses that are entered in response to an order, can have a lifespan or are immediately matched or canceled.

References to the Specification

Appellant's FIG. 1 shows a networked auction system 10 to facilitate trading of products such as real property, personal property, and financial property such as equity securities and/or other financial instruments such as bonds, options, futures, and so forth. The networked auction system 10 includes an order entry side 12 (entry systems 12a-12g,) and a response side 14 (response systems 14a-14g). Order entry and response sides can comprise of any/all of types of market participants as shown in FIG. 1.

Systems on the response side 14 are referred to as the "crowd." When an order is presented via the order entry systems 12a-12g, any one or more of the order response systems 14a-14g can respond to the order. Whichever order response system 14 responds first to the order and meets or exceeds the terms of the order will result in a match for execution. The response systems 14a-14g can also accept pre-defined relative indications (described below) that express a participant's willingness to trade. Each of the order entry systems 12a-12g and order response systems 14a-14g are representative of types of trader systems that handle many different types of products, e.g., financial instruments and, in a practical example such a system 10 could include many hundreds or thousands, etc. of any one type or types of order entry and order response systems.

Each order in the automated auction system 20 has a life span. The order entry side 14 of the auction 10 determines the maximum life span of an order. The life span can be variable and can be any set time period. Fixed time periods are preferred for trading financial securities such

as stocks. Examples of fixed time periods are a 15 second order, a 30 second order or a 0 second order. The fixed time periods can be chosen by taking into consideration the nature of the product that is being traded, any regulatory rules that are imposed on trading the product, as well as, the nature of the market activity. For a financial instrument such as stocks, regulatory rules are generally very important in determining time periods. Other times may be used even for financial instruments based on changes in regulatory rules. At the instant of order entry, an order is exposed to the crowd for the exposure time specified in the order.

Aspects of the auction system rely upon relative prices. These prices are relative to a standard, variable market price. One standard pricing mechanism used in the auction system 10 when auctioning stocks is The National Best Bid/Offer (NBBO). The NBBO is a standardized quote in the securities industry for the national market systems best-consolidated quotation. The National Best Bid/Offer is a quantifiable price to buy and sell. The NBBO is always changing and could change during the life of an order having an impact on the final price. The relative pricing mechanism uses the NBBO and a price improvement "pi" to produce relative prices. The "pi" enables an order to achieve a price better than the market price at the current time. The provision of the price improvement relative to the NBBO or other standard market quote would tend to improve the execution price relative to the spread, i.e., the difference between bid and offer prices for any product or security. It also facilitates decimal denominated trading by enabling small price improvements of one (1) cent or less.

Aspects of the invention also rely on pre-defined relative indications, which are defined by Appellant to correspond to a willingness or an expression to trade that resides in the system and remains dormant and unseen by other participants. This mechanism allows trading interest to remain anonymous as to price, size and identity and existence. A pre-defined relative indication, when activated, becomes a response that is priced relative to the National Best Bid/Offer (NBBO).

FIG. 2 shows an auction example 25a. An order entry participant 12 (FIG. 1), e.g., a broker/dealer system 12a, for example, enters a customer order 30 to sell a certain number of shares, e.g., 500 shares of "XYZ" stock at the market. The order 30 is entered with an order type, i.e., buy (B) or sell (S), the number of shares, identifier for the security and an exposure time, e.g., 15 seconds and optional conditions. The National Best Bid/Offer 32 (NBBO) is

recognized by the automated auction system 20 as the price 125-125 1/16. The National Best Bid/Offer price at this time is only a starting reference price for the auction. In this example, the auction has a maximum life span of 15 seconds. The entry of the order 30 starts the auction. The auction ends, as soon as a response that meets the minimum qualifications of the order is received provided that the response is received within the exposure time specified by order.

In the example of FIG. 2, if broker/dealer B enters via a system 14a with a buy response 34 at a fixed price of 125.03 for 500 shares of "XYZ" and thereafter but within the exposure time, broker/dealer C enters, via another system 14a, a buy response 36 with a relative price of an NBBO +0.03 for 500 shares (which is 125, the NBBO plus a \$0.03 price improvement), the automated auction system 20 will execute the order between broker/dealer A and broker/dealer B since broker/dealer B's order met the qualifications of the auction and it arrived first. This example illustrates that if there are two responses to an order at the same effective price (i.e., either fixed as was response 34 or relative to the NBBO, as was response 36) the response first in time is executed. In this example, a second response of broker/dealer C would not match with the order for execution even if it was at a higher price, because the first response of broker/dealer C arrived first and satisfied the order in its entirety.

If there was a portion of the order left over, that is, the first broker/dealer's response 34 was for less than the initial order, then the second broker/dealer's response 36 would have a chance at any remainder. In that case, both responses could be executed. If, the customer order was to sell 800 shares of "XYZ" (not shown), broker/dealer B's response 34 to buy would result in a trade for 500 shares at broker/dealer B's price and broker/dealer C's response 36 would result in a trade for the remaining 300 shares at broker/dealer C's price which may be different than broker/dealer B's price.

As soon as the terms and conditions are fully met by a response, that response ends the auction. The automated auction system 20 also ends the auction for an order if there were no pre-defined indications, contra-side orders or responses that satisfied the order and any conditions attached to the order within the chosen exposure time specified by the order. If the order is not executed in the automated auction system 20, the order may be eligible for a market maker guarantee or sent for execution outside of the system.

Other auction examples are discussed in FIGS. 3-8, illustrative of auctions involving multiple pre-defined relative indications (FIG. 3), auctions involving a remaining pre-defined relative indication 46' (FIG. 4), auctions involving a conditioned order within the example of two pre-defined relative indications and auctions involving orders at opposing sides of the market (FIG. 6) and partial executions (FIG. 7) with market maker guarantees or delivery to the best available market.

FIG. 9A depicts a format for an order for the auction system including information 101a entered by the order entry side of the auction. The information can include a security symbol, an indication of whether the order is to buy or sell, a quantity, an exposure period, and price. The price can be either fixed, market or conditioned such as a price improvement relative to the NBBO. Other conditions can include that the order is filled as an "all or none" and so forth. Orders with a fixed price may be treated differently (executed immediately (i.e., a zero second order) or canceled) depending on regulatory requirements. FIG. 9B shows a format for a response 114a. The response 114a includes information 115a including a security symbol, a price or a price improvement, a quantity of shares and a buy/sell indication. FIG. 9C shows a format for a pre-defined relative indication 107 including an information portion 107a which includes a security symbol, a relative price improvement, a quantity and an indication type, either buy or sell.

FIGS. 10A-10B depict a server process 100 executed on the auction system 20. The server process 100 receives an order 101 entered by the order side 12 of the system 10. The process 100 exposes 104 the order to the crowd, i.e., potential responders 14, via an electronic broadcast over the network systems mentioned above. The system 10 displays the size of the order and the order remains displayed for the life span of the order or until an execution ends the auction. The process 100 compares 106 the order to any existing pre-defined relative indications or contra-side orders or responses (if responses are chosen to have a lifetime as discussed below) that exist in the system 10 at order receipt.

If there are pre-defined relative indications or contra-side orders or responses (if responses have a lifetime) in the system 10, the process 100 will attempt to match 108 those existing pre-defined relative indications or contra-side orders or responses to the order. For pre-defined relative indications, the match process 108 will examine the pre-defined relative

indication that exists, at the best price and which is in the system the longest at that best price, and will determine whether that pre-defined relative indication matches any conditions that may exist with the order. The same criteria could be applied to existing contra-side orders or responses. If there is a match, the order will be executed 110 with that pre-defined relative indication.

If there is not a match against the entire order, the process iterates through a queue of pre-defined relative indications, contra-side orders and responses to determine the next oldest pre-defined relative indications, contra-side orders and responses at that best price to determine a match for all or a portion of the remaining order. The match process 108 attempts to find the pre-defined relative indications, contra-side orders and responses with the best price improvement or best price, as appropriate, and that is the oldest in the auction system 20 at that price improvement and which satisfies all conditions of the order and validating constraints that may apply. For example, if a price is specified outside of the NBBO it may be matched by the system 20 but will not pass validation.

If there are no matching existing pre-defined relative indications, contra side order or responses, the process 100 will continually receive contra side orders 101, responses 113, and newly arriving pre-defined relative indications 107. The process 100 will compare 112 newly received contra side orders 101 responses or pre-defined relative indications 107 to match 118 against the current order.

The process 100 performs the compare and matches over a life span window that is determined by the exposure period specified 119 by the order entry 101. If the process 100 determines a match 116 or 118, the order will be executed 117. Otherwise, the process 100 will continue to wait until the exposure time period 119 specified in the order 101 has elapsed 118. If the process 100 does not receive a matching response within that time period, as shown in FIG. 10B, the process 100 will expire 124 the auction process for that order.

An alternative arrangement could have the process 20 allow responses to have a lifespan coextensive with the lifespan of the auction process, i.e., the exposure time specified for the order.

(6) Issues

The issues to be decided on appeal are:

1. Did the Examiner properly reject claims 3, 5 and 24 under 35 U.S.C. 112, second paragraph?
2. Did the Examiner properly reject claims 33, 34, 38, 39 and 64 as anticipated by Harrington et al, U.S. Patent 6,161,099?
3. Did the Examiner properly reject claims 1, 2, 4, 14-25, 27-32, 35, 36, 40, 55-58, 65-72, and 74-78 as being obvious over Harrington et al, U.S. Patent 6,161,099?
4. Did the Examiner properly reject claims 3, 5, 12, 13, 26 and 73 as being obvious over Harrington et al, U.S. Patent 6,161,099 in view of Silverman et al. U.S. Patent 5,136,501?

(7) Grouping of Claims

Claims 1-40, 55-58 and 64-78 do not stand or fall together. Appellant's claims will be argued in separate groupings as defined below.

Group I has claims 33-39;

Group II has claims 1, 4-6, 9, 10, 13, 24-32, 73 and 75;

Group III is claim 2;

Group IV is claim 3;

Group V has claims 7, 8, 11, 12 and 76;

Group VI has claims 14-23;

Group VII has claims 40, 65-70;

Group VIII has claims 55-58;

Group IX has claims 71, 72, 77 and 78;

Group X is claim 64.

(8) Argument

1. The Examiner improperly rejected claims 3, 5 and 24 under 35 U.S.C. 112, second paragraph?

2. The Examiner has failed to establish a case of prima facie anticipation under 35 U.S.C. 102(e) of claims 33, 34, 38, 39 and 64 as being anticipated by Harrington et al, U.S. Patent 6,161,099

3. The Examiner failed to establish a case of prima facie obviousness under 35 U.S.C. 103(a) of claims 1, 2, 4, 14-25, 27-32, 35, 36, 40, 55-58, 65-72, and 74-78 as being obvious over Harrington et al, U.S. Patent 6,161,099.

4. The Examiner also failed to establish a case of prima facie obviousness under 35 U.S.C. 103(a) of claims 3, 5, 12, 13, 26 and 73, as being obvious over Harrington et al, U.S. Patent 6,161,099 in view of Silverman et al. U.S. Patent 5,136,501.

Printed Matter rejections

In *In re Lowry* 32 F.3d 1579 (Fed. Cir. 1994), the Federal Circuit reviewed the law regarding so-called printed matter rejections. In *Lowry*, the court citing *In re Gulack*, 703 F.2d 1381 (Fed. Cir. 1983) stated:

The Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art. *Gulack*, 703 F.2d at 1385. The PTO may not disregard claim limitations comprised of printed matter. See *Gulack*, 703 F.2d at 1384; see also *Diamond v. Diehr*, 450 U.S. 175, 191, 101 S.Ct. 1048, 1059, 67 L.Ed.2d 155 (1981). This court in *Gulack*, however, would not give patentable weight to printed matter absent a new and unobvious functional relationship between the printed matter and the substrate. *In re Lowry* 32 F.3d 1579 , 1583 (Fed. Cir. 1994)

In *Lowry*, the Federal Circuit noted that: "As an initial matter, this court notes that *Gulack* cautioned against a liberal use of "printed matter rejections" under section 103:

A "printed matter rejection" under §103 stands on questionable legal and logical footing. Standing alone, the description of an element of the invention as printed matter tells nothing about the differences between the invention and the prior art or about whether that invention was suggested by the prior art.... [The Court of Customs and Patent Appeals], notably weary of

reiterating this point, clearly stated that printed matter may well constitute structural limitations upon which patentability can be predicated. *Gulack*, 703 F.2d at 1385 n. 8.

Despite this cautioning, the Board erroneously extended a printed matter rejection under sections 102 and 103 to a new field in this case, which involves information stored in a memory. This case, moreover, is distinguishable from the printed matter cases. The printed matter cases "dealt with claims defining as the invention certain novel arrangements of printed lines or characters, useful and intelligible only to the human mind." *In re Bernhart*, 417 F.2d 1395, 1399, 163 USPQ 611, 615 (CCPA 1969). The printed matter cases have no factual relevance where "the invention as defined by the claims requires that the information be processed not by the mind but by a machine, the computer." *Id.* (emphasis in original). *** Nor are the data structures analogous to printed matter. Lowry's ADOs do not represent merely underlying data in a database. ADOs contain both information used by application programs and information regarding their physical interrelationships within a memory. Lowry's claims dictate how application programs manage information. Thus, Lowry's claims define functional characteristics of the memory. *Lowry* 703 F.2d at 1385.

Obviousness

"It is well established that the burden is on the PTO to establish a prima facie showing of obviousness, *In re Fritsch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (C.C.P.A., 1972)."

"It is well established that there must be some logical reason apparent from the evidence or record to justify combination or modification of references. *In re Regal*, 526 F.2d 1399, 188 U.S.P.Q.2d 136 (C.C.P.A. 1975). In addition, even if all of the elements of claims are disclosed in various prior art references, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill in the art would have been prompted to combine the teachings of the references to arrive at the claimed invention. *Id.* Even if the cited references show the various elements suggested by the Examiner in order to support a conclusion that it would have been obvious to combine the cited references, the references must either expressly or impliedly suggest the claimed combination or the Examiner must present a convincing line of reasoning as to why one skilled in the art would have found the

claimed invention obvious in light of the teachings of the references. *Ex Parte Clapp*, 227 U.S.P.Q.2d 972, 973 (Board. Pat. App. & Inf. 1985)."

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the [claimed] structure, "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Laskowski*, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989).

"The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

"The critical inquiry is whether 'there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *Fromson v. Advance Offset Plate, Inc.*, 225 U.S.P.Q. 26, 31 (Fed. Cir. 1985).

Anticipation

"It is well settled that anticipation under 35 U.S.C. §102 requires the presence in a single reference of all of the elements of a claimed invention." *Ex parte Chopra*, 229 U.S.P.Q. 230, 231 (BPA&I 1985) and cases cited.

"Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

"This court has repeatedly stated that the defense of lack of novelty (i.e., 'anticipation') can only be established by a single prior art reference which discloses each and every element of the claimed invention." *Structural Rubber Prod. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1270 (Fed. Cir. 1984), citing five prior Federal Circuit decisions since 1983 including *Connell*.

In a later analogous case the Court of Appeals for the Federal Circuit again applied this rule in reversing a denial of a motion for judgment n.o.v. after a jury finding that claims were anticipated. *Jamesbury Corp. v. Litton Industrial Prod., Inc.*, 225 U.S.P.Q. 253 (Fed. Cir. 1985).

After quoting from *Connell*, "Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim," 225 U.S.P.Q. at 256, the court observed that the patentee accomplished a constant tight contact in a ball valve by a lip on the seal or ring which interferes with the placement of the ball. The lip protruded into the area where the ball will be placed and was thus deflected after the ball was assembled into the valve. Because of this constant pressure, the patented valve was described as providing a particularly good seal when regulating a low pressure stream. The court quoted with approval from a 1967 Court of Claims decision adopting the opinion of then Commissioner and later Judge Donald E. Lane:

[T]he term "engaging the ball" recited in claims 7 and 8 means that the lip contacts the ball with sufficient force to provide a fluid tight seal ***** The Saunders flange or lip only sealingly engages the ball 1 on the upstream side when the fluid pressure forces the lip against the ball and never sealingly engages the ball on the downstream side because there is no fluid pressure there to force the lip against the ball. The Saunders sealing ring provides a compression type of seal which depends upon the ball pressing into the material of the ring. *** The seal of Saunders depends primarily on the contact between the ball and the body of the sealing ring, and the flange or lip sealingly contacts the ball on the upstream side when the fluid pressure increases. 225 U.S.P.Q. at 258.

Relying on *Jamesbury*, the ITC said, "Anticipation requires looking at a reference, and comparing the disclosure of the reference with the claims of the patent in suit. A claimed device is anticipated if a single prior art reference discloses all the elements of the claimed invention as arranged in the claim." *In re Certain Floppy Disk Drives and Components Thereof*, 227 U.S.P.Q. 982, 985 (U.S. ITC 1985).

Discussion

Indefiniteness Rejection

Appellant takes the position that this rejection was overcome by the amendment after final, which the examiner indicated as being entered.

Prior Art Rejections

Group I (claims 33-39)

Claim 33 is representative of this group of claims and is directed to a system for auctioning financial products over a distributed network. The features of claim 33 include a plurality of workstations for entering orders for financial products by specifying in the order an exposure time for which the order is displayed for responses and a plurality of workstations for entering responses to orders for the product. Claim 33 also features a server computer executing a server process that for a first one of said orders determines a match to said first order with the responses and contra-side orders during the exposure time specified by said first order.

The examiner contends that Harrington discloses entering orders that specify an exposure time. The examiner did not provide in this rejection any reference to where Harrington teaches the feature of "entering orders for financial products by specifying in the order an exposure time for which the order is displayed for responses..." However, in the rejection of claim 1, the examiner relied on Figures 5, 12 and 15 and discussion in column 6, lines 10-36, column 7 line 65 to column 8 line 18; column 10 lines 22-41 and column 13 lines 53-56 to teach the feature of entering orders for financial products by specifying in the order an exposure time for which the order is displayed for responses..." (See page 7 of the office action).

Appellant contends that Harrington does not teach entering orders. Orders as used in Appellant's claims can be two-sided. As such, orders possess the characteristics to be either a "buy" order or a "sell" order. Harrington describes that an issuer will "offer" to sell bonds to underwriters who "bid" on the bonds to establish a yield at which the bond will be sold to investors. Harrington describes: "... original Issuer municipal bond auctions in which a municipality ("Issuer") "offers" its bonds to purchasers, generally underwriters who resell them to the public." (Col. 6 lines 10-12 Harrington) outside of the auction. According to Harrington: "Bonds are offered to underwriters ("bidders") by means of two official documents..."

Despite what Harrington teaches, the examiner chooses to characterize Harrington as teaching "orders" and cites the American Heritage Dictionary, Second Edition to define the word order in an unstated attempt to imply that orders are inherent in Harrington. However, merely supplying a definition of "order" is not sufficient to show that orders are inherent in the teachings of Harrington. Inherently, Harrington does not possess "orders" as used in Appellant's claims.

Orders are not inherent in Harrington because when the Issuer in Harrington starts an auction by offering a bond, the "offer" that starts the auction does not have any contra-side "offer" to buy the bond by the Issuer. That is, Harrington cannot use one of the offers entered by an Issuer to match a contra-side offer of that Issuer or another Issuer. Harrington teaches a price/yield discovery process that starts with a new offer of bond issue(s) to discover how the bond issue(s) should be priced in the market given current market conditions. In Harrington, an auction of one bond Issue cannot be matched off against that of another bond issue on the contra (opposite) side of the market, since the contra side of the offer does not exist. That is, Issuers are not both buying and selling bonds. Issuers are only offering to issue bonds. Harrington is unlike Appellant's system where an order can be to a "buy order" or a "sell order." In Appellant's system there can exist an order (either buy or sell) and a contra-side order (either sell or buy) that can be used to satisfy the order. Accordingly, Harrington does not describe an order nor a contra-side order.

Harrington also does not describe an order having an exposure time for which the order is displayed for responses. An order with an exposure time is functionally different from Harrington's administrative GUI of FIG. 15. An issuer of bonds seeking to establish a price through the bidding process (offer as referred to in Harrington) could not use the GUI of FIG. 15

to also buy the bonds. FIG. 15 does not provide any provision for the Issuer to buy bonds and thus set in motion an order to buy. This would make no sense in the context of the system taught by Harrington and thus viewing Harrington as teaching orders is illogical. Harrington's system is merely an initial pricing tool for an initial issuance (selling) of bonds to underwriters. Thus, the GUI of FIG. 15 does not produce orders with an exposure time and could not provide contra-side orders that reside in the system. Since Harrington fails to disclose all elements of Claim 33 arranged as in the claim, group I claims 33-39 are allowable over Harrington.

Group II (claims 1, 4-6, 9, 10, 13, 24-32, 73 and 75)

Claim 1 is representative of this group of claims. Claim 1 is directed to a method of auctioning products over a distributed networked computer system. Distinguishing features of claim 1 include entering an order for a product by specifying in the order an exposure time for which the order can be displayed for responses, entering responses to the order, at least some of the responses specifying a relative price with a price improvement with the relative price being relative to a generally accepted indicator of a prevailing current market price and matching the order with a first one of the responses that meets all of the conditions specified by the order during the exposure time specified by the order, with matching of the first one of the responses with the order terminating the auction. Harrington does not suggest at least these features of claim 1.

As discussed above, Harrington does not suggest an order, and certainly does not suggest orders specifying exposure time. The offer disclosed by Harrington does not possess the features of an order. In addition, Harrington does not suggest a generally accepted indicator of a prevailing, current market price. The purpose of the Harrington system is price discovery. While Harrington mentions a "current best bid", (Col. 9 line 14) a current best bid as used in Harrington is simply the best bid in the auction at the instant in time. No transactions can occur at that best bid, and that best bid is not the equivalent to a generally accepted indicator of a prevailing market price.

Moreover, claim 1 equally covers the situation where products are bought or sold by the order. Harrington has no such analogy in the disclosed system. Harrington does not suggest a

specified price improvement in responses to the order and therefore, does not suggest any relative price with a "specified price improvement" specified in the response.

Harrington also does not suggest matching the order with a first one of the responses that meets conditions specified by the order during the exposure time ... with the first one of the responses terminating the auction. Harrington waits until the auction ends and awards winning bids based on the best true interest cost (TIC). Further, Harrington collects bids and terminates the auction according to the end time of the auction, (not when conditions specified in the order are met as in Claim 1). See for instance Col. 9 lines 30-55; Col. 10 line 32-41.

While Harrington does mention other types of auctions in the Background, i.e., where the first buyer to accept a bid is the winner known as a "Dutch flower auction," Harrington is teaching away from using such a mechanism in his disclosed auction and the Examiner has not described how such a mechanism could be used in Harrington's auction since the purpose of the auction is price/yield discovery.

Apparently, the examiner concedes that all of the features in claim 1 that are related to responses are absent in Harrington. The examiner addresses this shortfall in Harrington by relying on a misapplication of the so-called "printed matter" doctrine to summarily dismiss Appellant's claimed features involving responses and matching.

The examiner states that: "In particular each claim recites a limitation detailing an entering a response or responses ... step as it does not effect (sic) and concludes with a matching step that requires responses to be matched to orders according to the amended limitation of the conditions of the order." The examiner concludes that:

Therefore the matching between the order and the responses is purely a function of the conditions of the initial order and occur independently of the data specified in an entered response or responses. Hence the entering a responses step is merely descriptive material as it does not effect the way in which the computing processes of creating and fulfilling an order are performed *In re Gullack*, 703 F.2d138, 1385, 217 USPQ 1401 (Fed Cir 1983); *In re Lowry*, 32 F3d 1579, 32 USPQ2d 1031 (Fed Cir 1994).

This reasoning is nothing more than an improper attempt to ignore limitations in Appellant's claim 1, for which the examiner cannot find any teachings in Harrington or the prior art. Neither the claim language nor the cases cited support the position taken by the examiner.

Claim 1 is directed to a method of auctioning products based on the existence of two items "an order" and "a matching response." Matching occurs when a response has a relative price that meets one of the conditions of the order (price), and which meets all other conditions of the order. The examiner incorrectly assumes that data entered with the response has no bearing on the outcome of the match. The act of entering responses is necessary to match an order with a response and for this reason alone "entering responses to the order" is not merely functional descriptive material. However, since claim 1 also specifies that the responses specify a relative price with a price improvement, it is the relative price of the response that at any moment in time, if it meets a price condition of an order, will effect an execution of the order; and for limit or market orders or orders that require specific price improvement the relative price and price improvement of the responses dictates the price at which the order is executed.

The examiner thus takes an unsupportable position to extend printed matter rejections to claims directed at financial trading conducted on computer systems. This is contrary to the criticism of the printed matter doctrine in the cases cited by the examiner *In re Lowry* 32 F.3d 1579 (Fed. Cir. 1994), and *In re Gulack*, 703 F.2d 1381 (Fed. Cir. 1983). In both cases, the Federal Circuit noted that the printed matter doctrine "stands on questionable legal and logical footing." *Lowry*, 703 F.2d at 1385, citing *In re Gulack*, 703 F.2d at 1385 n. 8. Indeed, in *Lowry* the Federal Circuit refused to extend the printed matter doctrine to the patenting of data structures on a computer readable device. While, in *Gulack* the Federal Circuit required a showing of a functional relationship between the printed matter and the substrate of the appealed claims, such a showing is not required where the examiner has not made a showing that the claims call for printed matter, which claims 1-40, 55-58 and 64-78, clearly do not.

The examiner has erroneously extended a printed matter rejection under sections 102 and 103 to a new field; financial trading conducted on computer systems. In *Lowry*, the Federal Circuit refused to extend the printed matter rejection to information stored in a memory. In *re Bernhart*, 417 F.2d 1395, 1399, 163 USPQ 611, 615 (CCPA 1969) the CCPA refused to extend the printed matter rejection to cases where "the invention as defined by the claims requires that

the information be processed not by the mind but by a machine, the computer." Id. According to *Bernhart*: "The printed matter cases "dealt with claims defining as the invention certain novel arrangements of printed lines or characters, useful and intelligible only to the human mind."

Accordingly, the examiner cannot ignore limitation in Appellant's claims and therefore these claims are distinct over the reference.

Group III (claim 2)

Claim 2 limits the extent of the auction by specifying a relatively short exposure time to less than or equal to about 30 seconds. Harrington does not suggest this feature. A short exposure time would not serve any purpose in Harrington, since Harrington is a price/yield discovery process where the market is trying to discover the price/yield at which the bond should be issued taking into considerations more than the mere supply and demand that generally governs auctions where pricing is specified. Claim 2 is directed to a fast moving market where prices of products are generally known, but where such prices can and do fluctuate based on supply and demand for the particular product.

Group IV (claim 3)

Claim 3 is representative of this group of claims and is directed to the feature that the price of the response changes with changes in the generally accepted indicator during the life of the order and the price of the response has an impact on the final price of the order. The examiner argues that:

Therefore the matching between the order and the responses is purely a function of the conditions of the initial order and occur independently of the data specified in an entered response or responses. Hence the entering a responses step is merely descriptive material as it does not effect the way in which the computing processes of creating and fulfilling an order are performed *In re Gullack*, 703 F.2d 138, 1385, 217 USPQ 1401 (Fed Cir 1983); *In re Lowry*, 32 F3d 1579, 32 USPQ2d 1031 (Fed Cir 1994).

For all of the reasons discussed in Group II, the examiner is incorrect in ignoring limitations in Appellant's claims. Claim 3 however, specifically recites that responses affect the final price at which the order is matched and therefore, there is absolutely no basis for the examiner to ignore these limitations as set out in claim 3.

Harrington does not teach this limitation. Harrington does not have orders as recited in claim 1 and does not have responses that have prices that change with changes in the generally accepted indicator during the life of the order, as recited in claim 3.

Group V (claims 7, 8, 11, 12 and 76)

Claim 7 is representative of this group of claims and is directed to the feature of entering pre-defined relative indications that correspond to a willingness to buy or sell the product. Features of the pre-defined relative indications are that they specify a price relative to a current market price and are undisclosed to participants in the market until and unless matched with an order. An unmatched portion of the PRI remains undisclosed until matched or withdrawn. Harrington does not teach any relative pricing that is relative to a current market price. There is not a current market price in Harrington, the "best bid" as taught by Harrington is not a current market price but only reflects the highest bid currently in the system. Since, nothing executes at that best bid until the auction is over, the best bid is not a prevailing market price. Moreover, the best bid does not ever become inferior as can happen with a prevailing market price, which will rise and fall with changes in supply and demand.

Group VI (claims 14-23)

Claim 14 is representative of this group of claims and is directed to a method of auctioning financial products over a distributed, networked computer system. Features of claim 14 include entering orders for financial products with the orders specifying an exposure time for which the order can remain active. Claim 14 also has the feature of entering responses that specify a price and quantity.

Orders are matched against responses and contra-side orders, during an interval determined by the exposure time specified in the orders. According to claim 14, when a first one of the responses meets the conditions specified by the order the auction is terminated and the

order expires if no matching responses or contra-side orders are received during the exposure period.

Harrington does not suggest orders and does not suggest contra-side orders. Hence, Harrington does not suggest orders specifying an exposure time for which the order can remain active.

Group VII (claims 40, 65-70)

Claim 40 is representative of this group of claims and is directed to a system for auctioning financial products over a distributed, networked computer system. In addition to the novel features of a plurality of workstations for entering orders that specify a price for the financial product, a quantity of the financial product and exposure time which the order can remain active and a plurality of workstations for entering responses to orders for the product, claim 40 also includes the limitation of pre-defined relative indications specifying a quantity and being undisclosed to participants in the market until and unless matched with an order. Both the pre-defined relative indications and the responses specify a price and quantity. Claim 40 includes a server computer to determine a match to a first order with the predefined relative indications, responses and contra-side orders during an interval determined by the exposure time specified by said first order.

Harrington does not suggest a predefined relative indication. As defined by Appellant, a pre-defined relative indication resides in the system and remains dormant and unseen by other participants. The pre-defined relative indication mechanism allows trading interest to remain dormant, and anonymous as to price, size, existence and identity. A pre-defined relative indication, when activated, becomes a response that is priced relative to a standard reference quote, e.g., the National Best Bid/offer (NBBO).

The examiner contends that Harrington discloses pre-defined relative indications variously at col. 10 lines 7-12 and 51-61 and col. 13 lines 57-61 (page 6 of the final action), FIG. 6 (page 8 of the final action) and col. 14 lines 10-13 and FIG 10 col. 9 lines 13-39 (page 8 of the final action). None of these references in Harrington suggest pre-defined relative indications that willingness or an expression to trade that resides in the system and remains dormant and unseen by other participants and which is anonymous as to price, size existence and identity.

Harrington in the Background mentions prior art "silent real-time" auctions where bidders are made aware at all times of the magnitude of the current highest bid but do not know the identity of the highest bidder and "a sealed-bid auction" where "bidders are given the chance to make only one secret bid." Harrington also discusses a "silent and blind auction" where the specific bids and identity of the bidders is maintained in secret until close of the auction. At Col 12 line 55 Harrington also mentions "allowing for anonymity in silent real-time auctions."

None of these teachings suggest a predefined relative indication having the features that it resides in the system and remains dormant and unseen by other participants, but when activated, becomes a response that is priced relative to a standard reference quote, e.g., the National Best Bid/offer (NBBO).

Group VIII (claims 55-58)

Claim 55 is representative of this group of claims and is directed to a method of auctioning securities. Claim 55 features the limitations of entering an order for a security and an exposure time for which the order can be exposed to responses, which as discussed above distinguishes over Harrington. Claim 55 is further limited to a conditioned order namely an "order specifying a condition that seeks a specific minimum relative price improvement." Harrington does not teach an order specifying a specific minimum relative price improvement. While Harrington teaches minimum increments and whether to allow all bids or only better bids, Harrington fails to show a priced offer (that is the purpose of the invention in Harrington to find the price) and does not show a market price and therefore does not teach an order specifying a condition that seeks a specific minimum relative price improvement.

Group IX (claims 71, 72, 77 and 78)

Claim 71 is representative of this group of claims. Claim 71 includes the features of entering an order for a product by specifying in the order at least conditions of an exposure time for which the order can be displayed for responses and entering responses to the order, responses specifying a relative price with a price improvement, as discussed above. Claim 71 also recites entering pre-defined relative indications, which distinguishes as discussed above. Claim 71 further distinguishes by reciting that the pre-defined relative indications specify a price relative

to a current market price Harrington does not suggest pre-defined relative indications that specify a price relative to a current market price.

Group X (claim 64)

Claim 64 is representative of this group and combines the limitations of the order specifying a condition that seeks a specific minimum relative price improvement and an exposure time. Claim 64 recites instructions to match the order with the response or contra-side order in accordance with the exposure time specified by the order. Neither the element of the condition that seeks a specific minimum relative price improvement nor the feature of the exposure time are found in Harrington, and hence the combination of these features serves to further distinguish claim 64 over Harrington.

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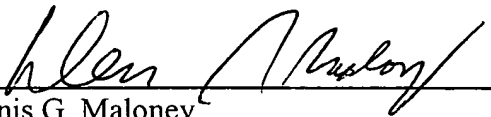
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Conclusion

Appellant submits, therefore, that Claims 3, 5 and 24 were improperly rejected as indefinite and claims 1-40, 55-58 and 64-78 are allowable over the cited art. Therefore the Examiner erred in rejecting Appellant's claims and should be reversed.

Respectfully submitted,

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Appendix of Claims

1. A method of auctioning products, said method executed over a distributed networked computer system, said method comprising:
entering an order for a product by specifying in the order at least conditions of a quantity of the product and an exposure time for which the order can be displayed for responses;
entering a responses to the order, at least some of the responses specifying a relative price with a price improvement with the relative price being relative to a generally accepted indicator of a prevailing current market price for the product, and quantity for the product; and
matching the order with a first one of the responses that meets all of the conditions specified by the order during the exposure time specified by the order, with matching of the first one of the responses with the order terminating the auction.
2. The method of claim 1 wherein the exposure time specified by the order is less than or equal to about 30 seconds.
3. The method of claim 1 wherein the price of the response changes with changes in the generally accepted indicator during the life of the order having an impact on the final price of the order.
4. The method of claim 1 wherein the products are financial instruments.
5. The method of claim 1 wherein the products are stocks and matching retrieves an oldest response and determines whether the oldest response includes a price that satisfies a price condition specified by the order.
6. The method of claim 1 further comprising:
expiring the order if the exposure time specified by the order has elapsed and no matching response was received.
7. The method of claim 1 further comprising:

entering pre-defined relative indications that correspond to a willingness to buy or sell the product the pre-defined relative indications specify a price relative to a current market price and the pre-defined relative indications being undisclosed to participants in the market until and unless matched with an order.

8. The method of claim 7 wherein the pre-defined relative indications specify a quantity of the product.

9. The method of claim 1 wherein entering orders further comprises:
specifying a price.

10. The method of claim 1 wherein entering responses further comprises:
specifying a product.

11. The method of claim 7 wherein matching further comprises:
retrieving an oldest response or pre-defined relative indication and determining whether the oldest response or pre-defined relative indication satisfies the order.

12. The method of claim 7 wherein retrieving further comprising:
matching pre-defined relative indications to the order with the pre-defined relative indications ranked by price and within a price ranking by time.

13. The method of claim 12 further comprising:
expiring the order if the exposure time specified by the order has elapsed and no matching response or pre-defined relative indication was received.

14. A method of auctioning financial products over a distributed, networked computer system, said method comprising:

entering orders for financial products into the distributed, networked computer system by specifying in the order a price for the financial product, a quantity of the financial product and exposure time which the order can remain active;

entering responses to orders for the product, said responses specifying a price and quantity; and for a first one of said orders,

matching said first order; to the responses and contra-side orders, during an interval determined by the exposure time specified by said first order, with a first one of the responses that meets the conditions specified by the order terminating the auction; and

expiring the first one of the orders if no matching responses or contra-side orders are received during the exposure period.

15. The method of claim 14 further comprising:
executing a trade between the first order and one of the contra-side orders or responses that matched the first order.

16. The method of claim 15 wherein executing a trade further comprises:
reporting the first order and the matched one of the contra-side orders or responses to a facility of a self-regulatory organization for market validation.

17. The method of claim 14 wherein the orders can further include additional conditions attached to the order.

18. The method of claim 17 wherein the additional conditions can include a price improvement.

19. The method of claim 14 wherein entering further includes entering pre-defined relative indications.

20. The method of claim 19 wherein entering pre-defined relative indications can occur before or after an order is entered.

21. The method of claim 14 wherein the process determines whether a match price falls outside of a spread specified for the product.

22. The method of claim 14 wherein for trading by a broker dealer, the system allows the broker/dealer to specify specific trading options when the broker dealer is trading with its own customer.

23. The method of claim 14 wherein an expired order is sent for a guarantee execution by a market maker or for execution on a market or an exchange.

24. A computer program product for auctioning products, said computer program product residing on a computer readable medium comprising instructions for causing a computer to:

receive an order that was entered for a product, the order having a specified price, a quantity and an exposure time;

receive at least one response specifying a relative price with price improvement, and a quantity; and

match the order with the at least one response during the exposure time specified by the order at the price of the response, with the relative portion of the price fluctuating according to changes in a national best bid/offer price that is periodically published during the auction.

25. The computer program product of claim 24 wherein the products, which are auctioned are products that have a value that changes with market conditions.

26. The computer program product of claim 24 wherein instructions that cause the computer to match further comprise instructions that causes the computer to:

retrieve an oldest response and determine whether the oldest response includes a price that satisfies a price specified by the order.

27. The computer program product of claim 24 further comprising instructions that cause a computer to:

expire the order if the exposure time specified by the order has elapsed and no response that matched the order was received.

28. The computer program product of claim 24 further comprising instructions that cause the computer to:

receive pre-defined relative indications that correspond to a willingness to buy or sell the product, with the pre-defined relative indications specifying a price relative to a current market price.

29. The computer program product of claim 25 wherein the pre-defined relative indications specify a quantity.

30. The computer program product of claim 24 wherein orders specify a product.

31. The computer program product of claim 24 wherein responses specify a product.

32. The computer program product of claim 24 wherein instructions that cause the computer to match further comprise instructions that causes a computer to:

retrieve an oldest response, contra-side order, or pre-defined relative indication and determine whether the oldest response, contra-side order, or pre-defined relative indication satisfies the order.

33. A system for auctioning financial products over a distributed, networked computer system, said system comprising:

a plurality of workstations for entering orders for financial products into the distributed, networked computer system by specifying in the order a quantity of the financial product and an exposure time for which the order is displayed for responses;

a plurality of workstations for entering responses to orders for the product, said responses specifying a price and quantity;

a server computer coupled to the workstations for entering the orders and the responses, said server computer executing a server process that for a first one of said orders,

determines a match to said first order with the responses and contra-side orders during the exposure time specified by said first order.

34. The system of claim 33 wherein the server process executes a trade between the first order and one of the other orders or responses that matched the first order.

35. The system of claim 34 wherein the server process executes a trade and reports the first order and the one of the contra-side orders or responses that matched the first order to a facility of a self-regulatory organization for market validation.

36. The system of claim 35 wherein the orders can further include conditions attached to the order.

37. The system of claim 36 wherein the conditions can include a price improvement.

38. The system of claim 33 wherein the response workstations can enter pre-defined relative indications that can exist in the system before an auction for the product has started.

39. The system of claim 33 wherein the response workstations can enter pre-defined relative indications after an order was entered.

40. A system for auctioning financial products over a distributed, networked computer system comprises:

a plurality of workstations for entering orders for financial products into the distributed, networked computer system, the orders specify a price for the financial product, a quantity of the financial product and exposure time which the order can remain active;

a plurality of workstations for entering predefined relative indications, the predefined relative indications specifying a quantity and being undisclosed to participants in the market until and unless matched with an order and responses to orders for the product, the predefined relative indications, the responses specifying a price and quantity; and

a server computer coupled to the workstations for entering the orders, predefined relative indications, and the responses, with the server computer executing a server process, said server process comprising software to:

determine a match to a first order with the predefined relative indications, responses and contra-side orders during an interval determined by the exposure time specified by said first order.

55. A method of auctioning securities comprises:

entering an order for a security, the order specifying a condition that seeks a specific minimum relative price improvement and an exposure time for which the order can be exposed to responses;

entering a response to the order, the response specifying a price, which can be a relative or fixed price or a contra-side order that has a condition seeking a relative price improvement, and quantity; and

matching the order with a first one of the response or the contra side order that satisfy conditions of the order and in accordance with the exposure time specified by the order.

56. The method of claim 55 wherein the order with the condition is exposed to the market for the exposure time and wherein the exposure does not reveal the condition.

57. The method of claim 55 wherein the order with the condition specified the price improvement relative to the national best bid/offer (NBBO).

58. The method of claim 55 wherein the order can include other conditions including executing all of the order or none of the order.

64. A computer program product method of auctioning securities comprises instructions to cause a computer to:

receive an order for a security, the order specifying a condition that seeks a specific minimum relative price improvement and an exposure time;

receive a response to the order, the response specifying a price, which can be a relative or fixed price or a contra-side order that may have a condition seeking a relative price improvement, and quantity; and

match the order with the response or contra-side order in accordance with the exposure time specified by the order.

65. The system of claim 40 wherein the order further specifies a condition that seeks a specific minimum relative price improvement.

66. The system of claim 40 wherein at least some of the responses to the order specify a price, which is a relative price with a specified price improvement.

67. The system of claim 40 wherein instructions to determine the match, matches the order with a first one of the response or the contra side order that satisfy conditions of the order in accordance with the exposure time specified by the order.

68. The system of claim 40 wherein one of the orders has a condition, the one of the orders is exposed to the market for the exposure time but the exposure does not reveal the condition.

69. The system of claim 68 wherein the order with the unrevealed condition specifies price improvement relative to a national best bid/offer.

70. The system of claim 68 wherein at least some of the orders a condition of executing all of the order or none of the order.

71. A method of auctioning products, said method executed over a distributed networked computer system, said method comprising:

entering an order for a product by specifying in the order at least conditions of a quantity of the product and an exposure time for which the order can be displayed for responses;

entering responses to the order, at least one of the responses specifying a relative price with a price improvement with the relative price being relative to a generally accepted indicator of a prevailing, current market price for the product, and quantity for the product;

entering pre-defined relative indications that correspond to a willingness to buy or sell the product, the pre-defined relative indications specify a price relative to a current market price and, which are dormant in the system and undisclosed to participants until and unless matched with the order

matching the order with a first one of the responses or predefined relative indications that meets conditions specified by the order, during the exposure time specified by the order.

72. The method of claim 71 wherein a plurality of orders and responses are entered, and wherein matching further comprises:

matching a first one of the orders with the responses during the exposure time interval specified by the order, with the first one of the responses terminating the auction

73. The method of claim 1 wherein a plurality of orders and responses are entered, and matching further comprises:

collecting responses and predefined relative indications during the exposure time specified by the order, and matching the order to an optimal one of the collected responses or predefined relative indications, the optimal one of the responses or predefined relative

indications determined in accordance with price and quantity values specified in the optimal one of the responses or predefined relative indications.

- 74. The method of claim 1 wherein the products are financial instruments.
- 75. The method of claim 1 wherein the products are stocks.
- 76. The method of claim 1 further comprising:
expiring the order if the exposure time specified by the order has elapsed and no
matching response or predefined relative indication was received.
- 77. The method of claim 71 wherein the exposure time is less than or equal to about
30 seconds.
- 78. The method of claim 71 wherein the price of the response changes with changes
in the generally accepted indicator during the life of the order having an impact on the final price
of the order.